

REMARKS

Claims 1-11 are actively pending in the application. By previous response, claims 12 through 14 have been withdrawn from consideration in response to a restriction requirement. Claims 1 and 3 have been amended to replace the term "strip conductors" with the equivalent but perhaps more descriptive term "conductive tracks". No new matter has been added with this amendment.

Claim Rejections Under 35 U.S.C. §103, Claims 1-4, 6 and 11

In the Final Office Action mailed April 7, 2003, the Examiner has rejected claims 1-4, 6 and 11 under 35 U.S.C. § 103(a) as being unpatentable over G.B. Patent Specification No. 979,616 (hereinafter "Honeywell") in view of U.S. Patent No. 5,813,765 (Peel *et al.*, hereinafter "Peel"). The Examiner states that Honeywell discloses a temperature measuring device for measuring the temperature of a fluid flowing in a tube, comprising an electric temperature sensor [thermocouple junction formed by 34 and 35] securely attached to an outer side of a central tube section [26] by soldering. The Examiner further states that the temperature sensor is mounted on strip conductors/leads [30, 28] on the outer side of the tube section. Still further, the Examiner states that said temperature sensor is connected to an end of the connection cable [36] via the strip conductors [30, 28] mounted along the tube section. The Examiner admits that Honeywell fails to disclose the use of thermally and electrically conductive paste to mount the temperature sensor. The Examiner contends that Peel discloses a temperature sensor having leads attached to an antenna by epoxy, and concludes that it would have been obvious to one of ordinary skill in the art to modify the device of Honeywell by securing the strip conductors/leads with epoxy to ensure proper mounting of the sensor and the sensor leads/strips.

Furthermore, in the Advisory Action mailed August 1, 2003, the Examiner has noted that the term "strip" is defined as "a long narrow piece of material". The Examiner asserts that, "[s]aid definition, in a broad sense, is considered applicable to the conductor wires [30, 28] in the temperature measuring device of Honeywell, each being a long narrow piece of material, and hence considered to be 'strip conductors'."

Applicants respectfully traverse this rejection.

Claim 1 is directed to a temperature measuring device and recites, as amended, in pertinent part,

an electric temperature sensor (2) securely attached to an outer side of a central tube section (1)... wherein the temperature sensor (2) is **mounted on conductive tracks** (3) on the outer side of the tube section (1) **using a thermally and electrically good-conducting paste**.

As indicated in the Request for Reconsideration, Applicants note that the originally-recited term "strip conductor" was translated from the German term "Leiterbahn" used in the German priority application. Applicants further note that an alternative translation of the term "Leiterbahn" is "track". Attached are copies of the title page and page 619 of Ernst, Richard, Dictionary of Engineering and Technology, Vol. I, German-English, Oscar Brandstetter Verlag, Wiesbaden, 5th Edition (1989). Page 619 shows that the noun "Leiterbahn" may be translated as either "strip conductor" or "track". In order to more particularly point out and claim the invention, Applicants have amended claim 1 and claim 3 depending therefrom to recite "conductive tracks" rather than "strip conductors". As the two terms are both equivalent to the term "Leiterbahn" recited in the priority application, no new matter has been added by this amendment.

Applicants submit that both English terms "strip conductor" and "conductive track" communicate to those of ordinary skill in the art conductors which are not typical round wire conductors such as those disclosed by Honeywell, but rather conductors formed as narrow strips or tracks on an insulating substrate. Applicants respectfully submit that the ordinary meanings of both of the terms "strip" and "track" imply that the conductive tracks have a generally flattened, two dimensional structure. The Examiner has correctly noted that the term "strip" is defined in Webster's Collegiate Dictionary, 10th edition as "a long narrow piece of material". Applicants submit, however, that implicit in this definition is that the material is essentially two dimensional, having a length (which is "long") and a breadth (which is "narrow"), both of which are substantially greater than the height of the material. The term "strip" is defined by The Oxford English Dictionary, The Clarendon Press, (1933) alternatively as "a narrow piece (primarily of textile material, paper or the like) of approximately uniform breadth"; "a long narrow tract of territory, or land, wood, etc."; "a narrow piece of board, metal

plate, etc.”; “a narrow portion of a surface, bounded by parallel lines”. Each of these definitions suggests, implicitly or explicitly, that the term “strip” is applied to items having a generally two dimensional character. The term “track” similarly implies a generally flattened, two-dimensional surface. The Oxford English Dictionary defines a “track” as “a path made or laid down for a special purpose”. Implicit here also is the proposition that the “track” or “path” defines a generally two dimensional surface.

Applicants further submit that the term “conductive track” must be interpreted in a manner consistent with the interpretation which one of ordinary skill in the art would make. The MPEP (8th edition, revised February, 2003) states in § 2111, “[t]he broadest reasonable interpretation of the claims **must also be consistent with the interpretation that those skilled in the art would reach** (emphasis added). *In re Cortright*, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999).” Furthermore, “[w]hen not defined by applicant in the specification, the words of a claim must be given their plain meaning. In other words, they **must be read as they would be interpreted by those of ordinary skill in the art** (emphasis added). *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342, 60 USPQ2d 1851, 1854 (Fed. Cir. 2001).” MPEP § 2111.01.

Applicants respectfully submit that one of ordinary skill in the art would attach a specialized, technical meaning to the term “conductive track”. See, for example, U.S. Patent No. 6,319,564 B1 (Naundorf et al., hereinafter “Naundorf”). Naundorf uses the term “track” to describe conductors having a generally flat structure and being adhered on a nonconductive support material. Similarly, EP 1 311 145 A1 (Lowe) discloses “conductive tracks” having a generally flat structure and adhered to a nonconductive surface. Copies of these references are enclosed herewith.

Honeywell does not disclose each and every element of the present invention. In a first embodiment, Honeywell discloses a thermocouple temperature sensor having bare ends of leads 28, 30 brazed or silver soldered at junctions 34 and 35 to the outer surface of tubular portion 26 to form a hot junction. Page 2, lines 25-29. In a second embodiment, Honeywell discloses a resistance thermometer 74 comprising a resistance coil 72 having electrical leads 76, 78. Honeywell discloses that the resistance coil 72 can be connected to the outer surface of the

tube 26, but is silent regarding the nature of the connection. Applicants respectfully disagree with the Examiner's characterization of the leads 28, 30 as "strip conductors". The leads 28, 30 and 76, 78 are not disclosed to be conductors in track form.

Applicants respectfully submit that Honeywell fails to disclose not only a temperature sensor mounted on a conductive track using a thermally and electrically conductive paste, as admitted by the Examiner, but also fails to disclose conductive tracks and a temperature sensor mounted on a conductive track. Accordingly, there is no objective teaching in Honeywell that would enable one of ordinary skill in the art to modify the invention of Honeywell in a manner that would render the present invention obvious under 35 U.S.C. § 103(a).

Peel does not disclose each and every element of the present invention. Peel discloses a temperature sensor disposed within an antenna finial 18. Leads 30, 32 connect the temperature sensor to a microcomputer. In one embodiment, the leads 30, 32 are covered with a plastic shrink tubing 34. In a second embodiment, the leads 30, 32 are affixed to the antenna mast 16 by epoxy. Applicants respectfully disagree with the Examiner's contention that the epoxy of Peel teaches, discloses or suggests the thermally and electrically good-conducting paste of the present invention. Peel simply teaches that "the sensor lead 30 and the return lead 32 can be secured to the mast 16 by a suitable epoxy, shrink wrapping or the like." Column 3, lines 57-59. Peel does not teach, disclose or suggest use of a thermally and electrically good conducting paste. The artisan of ordinary skill in the art will recognize that the conductive paste of the present invention is of the type described in Thick Film Technology, Jeremy Agnew, Hayden Book Company, Inc., (1973) at pages 64-68. A copy of the reference accompanies this Response. The conductive paste recited in claim 1 is an entirely different substance from the epoxy of Peel.

Applicants respectfully submit that in addition to failing to teach, disclose or suggest a temperature sensor mounted using thermally and electrically good-conducting paste of the present invention, Peel further fails to teach, disclose or suggest conductive tracks and a temperature sensor mounted on a conductive track. Accordingly, there is no objective teaching in Peel that would enable one of ordinary skill in the art to modify the invention of

Honeywell in a manner that would render the present invention obvious under 35 U.S.C. § 103(a)

The proposed combination of Honeywell and Peel fails to disclose at least the elements of a temperature sensor **mounted on a conductive track, using a thermally and electrically conductive paste, and conductors formed as tracks**. As Honeywell combined with Peel would fail to teach or suggest all of the elements of claim 1 of the Applicants' invention, it is respectfully submitted that a *prima facie* case for obviousness has not been established with respect to claim 1 and also with respect to claims 2-4, 6 and 11 depending directly or indirectly from claim 1. Accordingly, it is requested that the rejection of claims 1-4, 6 and 11 under 35 U.S.C. § 103(a) be withdrawn.

Claim Rejections Under 35 U.S.C. §103, Claims 5 and 7-10

The Examiner has rejected claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Honeywell in view of Peel in further view of U.S. Patent No. 4,520,661 (Tamai *et al.*, hereinafter "Tamai"). The Examiner has also rejected claims 7-10 under 35 U.S.C. § 103(a) as being unpatentable over Honeywell in view of Peel in further view of U.S. Patent No. 5,980,102 (Stulen *et al.*, hereinafter "Stulen"). The Examiner relies upon Tamai to teach that thermistors, thermocouples and platinum resistors are among the temperature sensing elements commonly selected for fluid temperature measurements. The Examiner further relies upon Stulen to disclose a temperature sensor housing having two semi-cylindrical parts connected to each other via a hinge and provided with a sealing device. Applicants respectfully traverse these rejections.

Applicants respectfully submit that Tamai and Stulen, both individually and in the proposed combinations, fail to disclose, teach or suggest a temperature sensor **mounted on a conductive track, using a thermally and electrically conductive paste, and conductors formed as tracks**. As the combinations of references proposed by the Examiner fail to teach or suggest all of the elements of claim 1 of the Applicants' invention, it is respectfully submitted that a *prima facie* case for obviousness has not been established with respect to claims 5 and 7-10 depending directly or indirectly from claim 1. Accordingly, it is requested that the rejection of claims 5 and 7-10 under 35 U.S.C. § 103(a) be withdrawn.


CONCLUSION

In view of the foregoing amendment and remarks, Applicants respectfully submit that the present application, including claims 1-11, is in condition for allowance and such action is respectfully requested.

Respectfully submitted,

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October 13, 2003
(Date)

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